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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,731	04/02/2004	Henrik T. Jensen	BP 3264	1026
51472 7590 01/04/2008 GARLICK HARRISON & MARKISON P.O. BOX 160727 AUSTIN, TX 78716-0727			EXAMINER SINGH, HIRDEPAL	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 01/04/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/816,731

**Applicant(s)**

JENSEN ET AL.

**Examiner**

Hirdepal Singh

**Art Unit**

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-18 and 21 is/are allowed.
- 6) ☒ Claim(s) 19 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

1. This action is in response to the Amendment filed on November 23, 2007. Claims 1-21 are pending and have been considered below.

### ***Response to Arguments***

2. The amendment filed on November 23, 2007 has properly defined the acronyms used in independent claim 1. Therefore, the objection to claims 1-10 is withdrawn.
3. The amendment has sufficiently addressed and corrected the 35 U.S.C. 112 problem to Claims 1 and 15 (Applicant's amendment to the specification is entered; as it is amended in a way to enable the "originally claimed" limitations, without adding any new subject matter). Therefore the rejection under 35 U.S.C. 112 first paragraph is withdrawn.
4. The amendment has not addressed the objection to claims 11-20. Independent Claims 11 and 19 use acronyms "TX, PSK, FSK" with out describing them in the plain text as required (as these are chains of different claim starting with independent claims 11 and 19, the acronyms appearing for first time in the chain of claims needs to be described separately). Therefore, the objection to claims 11-20 is not withdrawn.
5. The amendment has not addressed the objection to the specification; it fails to describe the acronym, on Page 5 of the specification in line 09 "TX", in plain text. When

an acronym is used in the disclosure for the first time it needs to be described in plain text. Therefore, the objection to specification is not withdrawn.

6. Applicant's arguments, see Pages 13-14, filed November 23, 2007, with respect to Claims 1, 11 and 19 have been fully considered and are persuasive. The prior art Schwartz et al. (US Patent no. 5,945,885) disclose the system supports two different modulation modes as shown in figure 5 and in column 6 lines 40-67, but fails to disclose that the radio transmitting system supports a smooth switching between FSK frequency shift keying and PSK phase shift keying i.e. when the transmitter is communicating with a remote agent according to a first protocol utilizing a first modulation technique at a first data rate e.g. FSK modulation , if it determines that the remote agent is capable of communicating at a higher second data rate using a second modulation technique, the radio transmitter will go to the second data rate with second communication mode through a transition period in accordance with spectral mask requirements. Therefore, The 35 USC § 103 rejection of Claims 1-18 and 21 has been withdrawn.

### ***Specification***

7. The disclosure is objected to because of the following informalities: Page 5 of the specification in line 09, Applicant used acronym "TX" without describing it in plain text. when an acronym is used in the disclosure for the first time it needs to be described in

plain text. Examiner believes that it should be "transmit or transmitting" and use this assumption in the office action below:

Appropriate correction is required.

### ***Claim Objections***

8. Claims 4-5 and 11-20 are objected to because of the following informalities:
9. In the Amendment filed on November 23, 2007 claim 4 is marked as "original", however this claim should be marked as "Currently Amended".
10. Applicant used Acronyms "TX, PSK, FSK" in Independent Claims 11 and 19 without describing them in the plain text as required (as this is a chain of different claim starting with independent claim 11, the acronyms appearing for first time in the chain of claims needs to be described separately).

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz et al. (US Patent no. 5,945,885) in view of Yang et al. (US patent no. 7,173,982).

**Regarding claim 19:**

Schwartz et al discloses a method in a radio transmitter, comprising:

producing, to a phase accumulator (118 in figure 5), FSK phase information based upon a first mode of operation and zero value phase information based upon a second mode of operation (column 6, lines 45-67 accumulator accumulates phase information for FSK mode and zero or no information for the other i.e. PSK mode);

producing meaningful I and Q channel information to a multiplexer (60 in figure 4; column 5, lines 15--25) during the second mode of operation;

producing, from the multiplexer a logic one and a logic zero during the first mode of operation and producing the meaningful I channel and Q channel information during a second mode of operation (column 5, lines 15-36).

Schwartz et al discloses all of the subject matter as described above except for specifically teaching producing accumulated phase information from the accumulator to a coordinate rotation digital computer (CORDIC).

However, Yang et al, in the same field of endeavor, teaches Coordinate Rotation Digital Computer (CORDIC) block coupled to receive the accumulated phase value and further coupled to receive the I and Q modulated data, the ' CORDIC block producing I

and Q channel signals reflecting a phase and magnitude based upon the accumulated phase value and the I and Q modulated data (column 2; lines 42-64; figures 3-4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to implement the rectangular converter as taught by Schwartz et al in the form of Coordinate Rotation Digital Computer (CORDIC) as it is a simple and efficient algorithm to calculate hyperbolic and trigonometric functions, and to use a DC offset compensation as taught by Yang et al in Schwartz system to remove the DC offset present in the signal in order to compensate for expected downstream low frequency interference.

#### ***Allowable Subject Matter***

13. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claims 1-18 and 21 are allowed.

15. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record Schwartz et al. (US Patent no. 5,945,885) fails to disclose, teach or suggest that the radio transmitting system supports a smooth switching between FSK frequency shift keying and PSK phase shift keying i.e. when the transmitter is communicating with a remote agent according to a first protocol utilizing a first modulation technique at a first data rate e.g. FSK modulation , if it determines that

the remote agent is capable of communicating at a higher second data rate using a second modulation technique, the radio transmitter will go to the second data rate with second communication mode through a transition period in accordance with spectral mask requirements. Also the prior art of record Yang et al. (US patent no. 7,173,982) fails to disclose, teach or suggest that the radio transmitter includes a Coordinate Rotation Digital Computer (CORDIC) block coupled to receive the accumulated phase value to receive the I and Q modulated data, and producing one of an FSK or a PSK modulated digital information signal, which, in the first mode of operation is based upon the logic one, the logic zero and the accumulated phase information and in the second mode of operation is based upon the accumulated phase information and upon the meaningful I and Q channel information.

### ***Conclusion***

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hirdepal Singh whose telephone number is 571-270-1688. The examiner can normally be reached on Mon-Fri (Alternate Friday Off) 8:00AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HS  
January 2, 2008



SHUWANG LIU  
SUPERVISORY PATENT EXAMINER